Identifying the core attributes of pediatric communication techniques to be taught to anesthetic trainees

Mann, Caroline Mary; Kennedy, Catherine

Published in:
Paediatric Anaesthesia

DOI:
10.1111/pan.13846

Publication date:
2020

Document Version
Peer reviewed version

DR CAROLINE MARY MANN (Orcid ID : 0000-0002-7593-0638)

Article type : Research Report

Handling Section Editor : Dr Mark Thomas

Title Page

RESEARCH REPORT

Title: Identifying the core attributes of pediatric communication techniques to be taught to anesthetic trainees

Short running Title: Communication pediatric anesthesia

Caroline Mary Mann[1] & Catherine Kennedy[2].

[1] Department of Anaesthesia, The Children's Hospital at Westmead, Sydney, Australia.

[2] Centre for Medical Education, University of Dundee, Scotland.

Correspondence

Caroline M Mann Department of Anaesthesia, The Children's Hospital at Westmead, Sydney, Australia.

Carolinemarymann@gmail.com. +61435772352.

What is already known:

- Effective communication to establish the rapport, engagement and cooperation of children and is a professional attribute of an anesthetist, and approaches and techniques have been well described in the literature.
- Despite inclusion in anesthetic training syllabi, there is limited evidence or guidance regarding which communication techniques should be taught and how, particularly in pediatric anesthesia.

What new information this study adds:

- This study explores the experiences of specialist anesthetists, trainees and assistants of using specific communication techniques and approaches with children within a broad framework, adding to the evidence and value of communication techniques already described in pediatric anesthesia literature.
- This study identifies the key overarching principles for communication approaches that work well with children in practice and are acceptable to pediatric anesthetists. These principles can be used to produce a pediatric communication education syllabus and program for anesthetic trainees locally also applicable to all anesthetic trainees.

Acknowledgement

The authors would like to thank Brendan Little for his work as independent data checker for data analysis.

Ethical approval

International ethical review and approval was conducted by the Sydney Children's Hospital Network and School of Medicine and Life Sciences Human Research Ethics Committees (2019/ETH08783 & 19/69).

Funding

This study received no external funding.

Conflict of Interest

The authors report no conflict of interest.

Abstract

Background: Anesthetic induction and other procedures performed by anesthetists are potentially stressful for children. Pediatric anesthetists use communication to rapidly establish rapport and engagement with children and reduce anxiety and discomfort. Communication in pediatric anesthesia is increasingly topical, but there is limited discussion regarding which specific techniques should be taught to trainees.

Aims: The aim of this research was to identify which communication techniques used locally by pediatric anesthetic specialists, trainees and nurses are viewed as the most effective and valuable to teach trainees.

Methods: Qualitative semi-structured focus groups (7) and in-depth interviews (7) were used to gather data from 30 specialist pediatric anesthetists, trainees and assistants from a major tertiary pediatric anesthetic department. Inductive and deductive thematic data analysis explored communication techniques used locally.

Results: The research identified the range of communication techniques being utilized to establish rapport and engage with children, including methods for distraction and focusing attention such as storytelling, guided imagery and positive suggestions. Thematic analysis revealed a series of core overarching principles for successful application, using social skills within an adaptable, competent, child-centered approach. Drawing on the experiences of specialist practitioners and trainees, teaching these communication techniques would ideally employ an interactive approach involving both modelling and specific communication education with focus on developing communication skills via experiential learning using self-reflection and feedback.

Conclusions: Within the range of communication techniques being utilized by pediatric anesthetists exist a series of core principles that are essential to engaging and building rapport with children. Focusing on the importance of these common core elements in trainee education, in addition to the range of techniques available, may provide a pragmatic framework for centers providing pediatric anesthesia to consider when designing their trainee curriculum.

KEYWORDS

Pediatric; anesthesia; communication; education; qualitative research

Main Body of Text

Introduction

Induction of anesthesia and other anesthetic procedures are potentially stressful, with over 70% of children experiencing significant pre-operative anxiety[1]. Pediatric anesthetists are often adept communicators, and communication is a key professional attribute of an anesthetic specialist[2-3]. Anesthetic induction requires rapid establishment of rapport and effective communication skills in order to engage with and build trust with children. Distress at induction is associated with emergence agitation, long-term negative behaviors and is stressful for children, carers and staff. Engaging and reassuring an anxious, distressed child and facilitating cooperation during induction may be difficult and take significant skill, but such communication can be analgesic and anxiolytic[4].

Anesthetists routinely employ a variety of techniques in order to reduce peri-procedural anxiety and pain experienced by children. Therapeutic verbal and non-verbal communications, also known as suggestions, elicit subconscious responses in patients' perception, mood or behavior that can produce positive behavioral responses[5]. Placebo-nocebo is an example of how positive or negative language can significantly affect patients' experiences of painful procedures[6]. Studies of neuro-behavioral evidence report that warning patients about procedural pain with negative suggestion (nocebo) produces more pain and distress than neutral comments, and that positive suggestions (placebo) can reduce pain, anxiety and distress[7-12].

The importance of effective communication in pediatric anesthesia is increasingly topical and highlighted in a number of studies[3],[7]. Cyna et al. categorized a range of advanced communication skills used by experienced pediatric anesthetists to facilitate anesthesia induction: voice change (72%), distraction (59%), direct commands (47%), repetition (41%), imagery (25%) and focused attention (25%)[3]. They suggested formal structured communication training and further research[3]. Other specific language and persuasive techniques highlighted by Cyna and Laing include establishing rapport using the 'LAURS' framework (Table 1), persuasive language, social proof, lived-in imagination, direct suggestion and informed consent[4,13-15] . Table 2 summarizes the range of communication techniques commonly employed[3,4,13].

Table 1: LAURS framework for establishing rapport

Table 2: Other communication techniques used to establish rapport and engage with patient and parent

There is increasing evidence that communication techniques relevant to pediatric anesthesia can be defined and taught[4,14-18]. Cyna, Andrew and Tan described the 'GREAT' framework to structure interactions (Table 3)[4]. They recognized language structures in hypnosis and neuro-linguistic programming that can provide a framework to teach anesthetists communication skills[4]. Observation and modelling have also been identified as key factors in effective learning of communication skills in pediatric anesthesia[19]. It would be easier for trainees to learn communication techniques already used by local specialists with fewer institutional barriers to implementation.

Table 3: GREAT framework for structuring any interaction and engaging with patient and parent

Experience and competence in communication skills for pediatric anesthesia are key components of modern anesthetic training[20]. It is difficult to appreciate how anesthetists' 'intuitive' communication skills can be taught and there is little guidance regarding how communication skills could be developed and improved[4,14]. This absence of guidance informed the researcher's desire to explore, from the perspective of experienced professionals, the use and perceived value of the range of communication skills used locally at the Children's Hospital at Westmead, in order to identify which techniques would be most valuable to teach anesthetic trainees.

Methods

Theoretical framework

This research aimed to explore the experiences and perceptions of anesthetic professionals and trainees at The Children's Hospital at Westmead of using communication skills in pediatric anesthesia. Qualitative case study research, founded in an interpretivist research paradigm, enabled the exploration of this contemporary, real phenomenon from the perspective of anesthetic staff, and involved rich description and the holistic investigation of the subject through multiple sources of data and methods[21]. Case study research involves the exploration of participants' experiences within social settings, demonstrating the 'synergistic interplay' between people and circumstance[21]. The constructs and values of researcher and participants are recognized

as they collaborate to produce knowledge and meaning, increasing understanding of complex phenomena using a constructivist inquiry methodology.

Focus group and semi-structured interviews were used to identify and explore the range of communication techniques used locally by pediatric anesthetic specialists. Experiences, realities and opinions of a wide range of local specialists, trainees and anesthetic assistants (nurses) were explored to produce in depth yet broad data using a triangulated, multi-valent approach[20]. The authors suggest that this case study research therefore produced rich, multi-layered, contemporary understanding of communication in pediatric anesthesia, despite its single location[21].

Researcher characteristics

The researcher was a Specialist Pediatric Anaesthetist interested in medical education, communication and research, with experience as both trainee and educator in four tertiary/quaternary pediatric anesthesia departments in Australasia. As a local team member, she occupied the position of an insider researcher with knowledge of the research context. Whilst this facilitated access and rapport with the research participants, she endeavored to ensure she did not make assumptions in her understanding, such as by asking participants to elaborate and explain the points being made.

Study context and sampling

The Children's Hospital at Westmead is a major tertiary pediatric center employing pediatric anesthetic specialists, nurses and trainees with a range of international experience. Anesthetic trainees were advanced trainees (registrars) and provisional fellowship trainees (fellows). Study information was provided to departmental staff by email, departmental posters, and personal communication. All pediatric anesthesia specialists (37), registrars (9), fellows (5) and assistants (25) were invited to participate in separate focus groups and semi-structured interviews. Thirty participants (Table 4) were allocated to focus groups of 2-8, or individual interviews to recruit maximum participants. Approximately one third of specialists and anesthetic nurses and two thirds of trainees were recruited.

Senior anesthetists in positions of departmental authority were offered interviews to minimize their hierarchical influence on participants' answers within a focus group. Focus groups were otherwise offered

unless precluded by participant, researcher and location availability. At least one interview was used per group.

Table 4: Participants

Data collection methods

The researcher facilitated focus group discussions using standard facilitation principles[23]. Discussions began with broad, open questions (Table 5), with the researcher then exploring the topics raised, seeking clarification of participants' points and encouraging self-reflection.

Table 5: Focus group and interview questions

Semi-structured interviews were performed using similar principles and questions but with more depth and direction. Audio recordings were transcribed verbatim with contemporaneous notes. Duration ranged from 20-82 minutes, mean 59 minutes. Research aims and methods were prospectively approved by Department Co-Heads, and Australian National Health and Medical Research Council ethical frameworks were strictly adhered to. The researcher facilitated discussions ethically, respectfully and fairly, welcoming participant involvement and opinion. All participants received written and verbal explanations about the research and written informed consent was obtained. Research methods were reproducible and auditable. De-identified transcriptions were password protected and stored on firewalled servers.

Data Analysis

Manual thematic analysis was utilized to scrutinize the data. Identified themes emerged from the data rather than being predefined and were refined via iterative constant comparison within and across transcripts to identify the key themes and issues. Data analysis explored the communication techniques already used by local specialists, and the opinions of specialist, anesthetic assistant and trainee regarding which skills should be taught to anesthetic trainees. Following inductive 'bottom up' analysis- coding themes and subthemes initially derived from content analysis[24], deductive 'top-down' analysis reviewed communication themes

relevant to pediatric anesthesia with relation to the literature to produce a comprehensive theme list[24]. Contextualized transcripts and derived themes were then reviewed and checked against this list to identify any missing themes- which were relabeled as necessary. Content analysis continued to confirm, clarify and identify relationships between themes and differences between participant groups until no new ideas were identified, acknowledging that this did not assume thematic saturation[25].

An independent data checker checked for coding accuracy. The investigator and data checker discussed data analysis and differences in themes, theme categorization or relationships until consensus was achieved.

Results

Figure 1: Summarized Results

Figure 2: Mind-map of Results showing effective communication techniques in pediatric anesthesia: core overarching principles, techniques to establish rapport and build engagement, plus sabotage to avoid

Use of communication techniques

Participants clearly and insightfully discussed a wide range of communication techniques used to establish rapport and engage with children with minimal prompting, all corresponding to approaches described in the literature and summarized in Tables 1-3. In establishing rapport, participants discussed specific steps similar to those outlined in the LAURS framework, such as taking time for conversation, specifically eliciting concerns, listening to the child, accepting then addressing concerns[4,13-15].

> *"The first point is identifying that there is something that's niggling at them….I think it's important to acknowledge it and kind of allow them to own it and then explain…."*

Participants discussed how negative communication (sabotage), such as during transference from parents or incorrectly set expectations by staff, could increase children's anxiety, especially if they appeared stressed or trying to coerce cooperation.

> *"If you're always using words like needle or pain…. it's going to escalate all of those anxieties."*

In such situations, many participants described reframing concerns using positive suggestions, avoiding negative suggestions or 'nocebo' i.e. words with negative associations such as needles, pain, sick and vomit. These techniques overlapped with setting and managing expectations.

> *"You're describing something, some qualities of the sensation they're likely to experience, but you rephrase it in a way that you don't use pain. You say cold."*

Similarly, in discussing their practice of engaging with patients, participants commonly described steps including those in the GREAT framework (Table 3), such greeting the child by name then introducing the anesthetist and their role in an approachable manner[4,13-15].

> "*Hi, I'm (first name), the sleepy doctor".*

Gauging anxiety of the child and parents was considered valuable. Setting and managing children's and parents' expectations and goals was discussed in the context of allaying anxiety, addressing concerns and reframing +/- improving peri-operative comfort. Anesthetic nurses discussed tacit agreement, respectfulness and asking permission as techniques for child-centric care.

> *"Please can you just turn that off for a second, I just need to do this, then …… thank you for doing that."*

In relation to specific skills used, participants described using stories, conversation and other modalities such as music, singing, lights, technology and bubbles to focus attention, engage or distract children. Anesthetists and nurses described using the child's clothing or toy as a *'hook'* to initiate conversation and engagement. Humor and para-linguistics such as slow paced speech, relaxed or upbeat tone of voice were also described to allay anxiety.

> *"There's a couple of bosses who love telling bad jokes."*

Many anesthetists had a standard 'spiel' or story for pre-operative conversations and induction. A common story was a rocket ship with the child as an astronaut, used variably as reframing or suggestion for guided imagery, distraction or lived in imagination.

"I remember when I was a registrar watching a very senior pediatric anesthetists tell a story in such an expressive manner that I didn't want the story to end."

Floating up either into the sky or into space in the rocket ship reframed induction experience, often using nitrous oxide which was reinforced using bubbles to focus attention further. Persuasive language to establish rapport included 'yes sets' as answering affirmatively improved acquiescence to subsequent requests.

"I have three questions for you. Do you know how to breathe? ... Do you know how to go to sleep? And do you know how to wake up? So the kid usually say yes to all of them."

Other persuasive language included positive reinforcement, double binds, games or challenges to safely accomplish anesthetic induction, for example jumping onto the bed, blowing bubbles through the anesthetic mask, then blowing up the 'balloon' i.e. the bag attached to the anesthetic circuit.

"a bit of competitiveness works really well. We've had lots of kids today, but some of them are quite good at blowing up the balloon, but I don't know, do you think you'll be good at learning at the balloon?"

Some anesthetists used imagination to engage the child using direct or indirect positive suggestions and reframed anesthetic induction into something fun. Common positive suggestions included reframing sevoflurane smell to coloring pens, food or part of the story. One participant described reframing the uncomfortable sensation of intravenous propofol using a confusional technique, others positively reframed it in terms of putting their arm into icy water to get a cold drink, thus providing a challenge that children would likely understand and accept. Other specific techniques to focus attention or distract included technology such as tablets or mobile 'phones, acknowledging that these potentially prevent establishment of rapport. Other technologies included lights, music and the oxygen saturation probe.

Many anesthetists modelled behavior to the child to encourage cooperation, such as using a prop or toy to demonstrate what would be happening.

"Let's put bunny to sleep first. Do that. Get the bunny to blow up the bag."

Most anesthetists described bringing the mask in below eye level or from in front, not putting their hand over the child's face and not introducing the mask onto the face too quickly or firmly i.e. non-verbal communication. Some anesthetists moved the mask progressively closer to facilitate acceptance.

> *"I … avoid the hand over the face, so approaching from where they can't quite see you, and if they are sitting just allow them to sit rather than lying down."*

Overarching principles

Through analyzing the participants discussions, a range of core overarching principles emerged that can be seen as essential components of practice, regardless of which individual technique is used: adaptability; child-centeredness; competence; and social/emotional skills.

Adaptability:

The importance of tailoring the approach taken to the child and specific context was a common theme. Timing of induction, for example distracting and engaging the child walking to the anesthetic bay, then minimizing pre-induction time was often considered crucial to maintain co-operation. In addition, modifying approaches depending on age and gender were also highlighted. All groups discussed using multiple different approaches flexibly: '*arrows in your quiver*' that could be pulled out and used.

> *"But that's the aim of the game you know. You can sort of build in stuff about blowing up the balloon or blowing bubbles or going into space, and that can be kind of tailored towards them as they're playing"*

Child-centric:

Ensuring that the child and their needs were the focus of the interaction, directly addressing the child first, physically getting down to their level were common approaches.

> *"When I go out to see the patients… my general approach is to direct almost all conversations at the kid, let the parent be along for the ride."*

Many participants discussed empowering the child, giving them the impression of choice and control and treating them with respect. A fun approach using play in a child friendly environment or child friendly props was also considered useful.

Competence:

Clinician control and authority emerged as a key overarching principle. This was in the context of providing safe anesthetic induction, decisiveness and taking charge, particularly with an uncooperative child and directing parents appropriately.

> *"The parents want someone to control this situation and they find that a bit reassuring…. you know, when inductions do go there and the kid loses it. Yeah, you need to have somebody in the room who's in charge."*

Being well prepared medically, familiar with local systems, geography and equipment, and having a standard spiel were described as conveying competence, helping establish trust with the child and parents. The reassurance of a relaxed or upbeat demeanor was frequently discussed, including non-verbal communication e.g. getting down to the child's level, choreography within the anesthetic bay as well as linguistic and para-linguistic communication such as tone of voice. 'One voice' within the team talking with the child to encourage cooperation and avoid confusion was discussed by many participants:

> *"Sometimes you just need to have one person to speak…..".*

Social/emotional skills:

Underpinning the approaches, participants highlighted the importance of social/emotional skills including honesty and authenticity, and having a caring, empathic and friendly approach. Some participants seeded positive caring suggestions: "*I'm the doctor who is going to take care of you*", but usually this was indirectly discussed as an overarching approach. Participants discussed involving parents when appropriate. Awareness of gender differences were often mentioned; some anesthetists discussed alternative stories for girls, usually less prepared or detailed, incorporating fairies or princesses. One female trainee noted that girls also liked space and rocket-ships. One participant discussed cultural sensitivity.

Participants discussed challenging situations with very anxious and uncooperative children for example who have developmental delay, multiple previous procedures, prior negative priming, very anxious parents or are 'needlephobic'. They identified the value of predicting procedural anxiety based on developmental stage or age and judging parental and children's pre-operative behavior. Participants discussed using exactly the same communication techniques even more scrupulously in a very adaptable approach appropriate to the individual child and their developmental stage such as yes sets, addressing concerns, taking time to engage the child whilst carefully avoiding the opposite of these helpful techniques i.e. negative suggestions and minimizing language, multiple people coercing the child, dishonesty, poor timing and scaring the child with prolonged forcible restraint.

"I think we get good at screening, what sort of patient we've got, and that's just experience, you know. It's age appropriate as we said but also what the child's like, are the parents chilled and relaxed or are they up-tight, then the kid's up tight. Are they kids that have been here multiple times and have very different ideas about how they want to go to sleep. Are they kids with issues like behavioral problems developmental delay and so forth. We get good at picking it. And then modifying our technique, using our own little tricks for that, for those different subgroups."

Effective communication is therefore very individual and context specific, requiring good judgement and adaptable use of a range of skills and techniques, as every induction or procedure has the potential to be challenging.

Which communication skills would be most valuable to teach anesthetic trainees?

All groups thought communication techniques could be taught, for example through modelling, discussion and self-reflection. Trainees particularly valued learning key overall approaches and frameworks in addition to specific techniques and modelled specific communication techniques by experienced seniors. Social learning was valuable either in groups with peers (nurses) or receiving communication tips and feedback from specialists (registrars and specialists). Trainees valued exposure to a wide variety of communication techniques so that they could use multiple techniques flexibly. Registrars and most specialists believed that protected time for practical communication education and increased clinical autonomy with feedback would

facilitate experiential learning. Trainees valued specific information from seniors regarding information for parents regarding induction and consent.

All groups thought that a flexible, child-centric and age-appropriate approach should be taught. They noted the value of appearing calm and relaxed or confident as well as being kind and caring. Jokes, fun and play were also considered valuable approaches, along with honesty and authenticity. All groups thought trainees should be taught to take time to establish rapport with children using conversation, child-centric attention and asking questions to relate and engage with them. Fellows and consultants thought that teaching storytelling would be valuable, plus non-verbal communication such as room choreography and getting down to the child's level. Consultants thought that trainees should be taught how to address patients' and parents' anxieties and concerns and highlighted preparation.

Discussion

This research explored practical application of communication skills in pediatric anesthesia, identifying and categorizing core overarching communication principles into four key categories: adaptable, child-centric, competent approaches using social/emotional skills. Some individual components of these core communication principles have already been described in the literature e.g. adaptability, authenticity, age and developmental stage appropriateness, empowerment[3-4,13-15]. This research identified further key principles of effective pediatric communication to improve understanding of approaches and allow application of techniques within a broader framework, individualized to child, clinician and context.

Many stories such as the rocket-ship were so similar that modelling to trainees was likely. The significant variability regarding stories of its implementation demonstrated how the techniques and overarching principles are implemented in practice. The rocket-ship story provided indirect positive suggestion, guided imagery, lived in imagination, reframing and focused attention. An assumed preference of girls for princesses and fairies was predominant but not universal. Establishment of rapport would define children's interests individualizing overall approach and story. Negative minimizing language such as 'just a little' and failure words such as 'try' were sometimes inadvertently described as reassuring[15].

All participants described the importance of establishing rapport and engaging children, as per GREAT and LAURS interaction frameworks[4,13-15]. Participants' approaches appeared variably adaptable, but most specified a flexible, child-centric approach. Concordance and repetition were high between groups, with far more inter-individual than intergroup variation. Despite the single location, themes produced were within standard Australasian pediatric anesthetic practices, based on the investigator's experience.

Effective communication is very individual and context specific, requiring good judgement and adaptable use of a range of skills and techniques individualized to the child and their developmental stage, as every induction or procedure has the potential to be challenging.

Strengths and Limitations

Whilst there is a considerable body of research on communication skills in pediatric anesthesia, there has been an absence of research on the experience of anesthetic practitioners or trainees of using these skills or consideration of how this could inform training. This research has sought to bridge that gap. Whilst this research focuses on a single case-study, the commonality of practice to that summarized in the literature suggests the findings may have wider relevance. The position of the researcher can be considered a strength and limitation of the research; facilitating access, rapport, enabling elaboration within the discussions, understanding participants viewpoints and informing the thematic analysis. However, response bias may have led to the selection of extroverted participants with insight and good communication skills. Incomplete anonymity potentially produced response and reporting bias, especially with a peer facilitating discussions within the researcher, trainee and specialist hierarchy. Facilitation was mindful and objective.

Thematic saturation was not assumed, as a larger sample size may well have produced further themes, especially if participants had broader clinical experience, for example training abroad or in different specialties. It was impossible to recruit every department member to participate due to time and labor constraints.

Reassurances that the data would be de-identified and used for educational purposes only promoted participation and open discussion, and reporting bias was limited by independent data checking.

Communication tools were described rather than observed, therefore data relied on participant engagement, accurate recall and reflexivity.

Significance and Impact

This qualitative research paradigm provided both broad and rich insight into the use of communication skills by experts and identified communication skills in pediatric anesthesia most valuable to teach anesthetic trainees. This case study may therefore be relevant to pediatric anesthetists and training stakeholders. Building rapport and communicating well with patients has huge patient, parent and clinician benefits[1,3-14-15]. The author hopes that this study facilitates a culture of enhanced patient communication and insightful, reflexive learning for trainees and specialists.

Conclusions

This study identified specific communication techniques and core overarching approaches within a broad framework for anesthetists to establish rapport and facilitate engagement and cooperation of children. It adds to the evidence and value of communication frameworks and techniques already described in pediatric anesthesia literature. This study provides core communication approaches that work well in practice and are acceptable to pediatric anesthetists. These approaches and techniques can therefore be used to produce a communication education syllabus and program for anesthetic trainees locally and more widely.

Reference List

1. Aguilera IM, Patel D, Meakin GH, Masterton J. Perioperative anxiety and postoperative behavioural disturbances in children undergoing intravenous or inhalational induction of anaesthesia. *Paediatr Anaesth.* 2003;13(6):501-507.

2. Australian and New Zealand College of Anaesthetists Education Unit ETADC. Anaesthesia training program September 2017 curriculum v1.7_October 2017. Retrieved July, 16 2018 from www.anzca.edu.au/document/anaesthesia-training-program-curriculum.pdf

3. Carlyle AV, Ching PC, Cyna AM. Communication during induction of paediatric anaesthesia: an observational study. *Anaesth Intensive Care.* 2008;36:180-184.

4. Cyna, AM, Andrew MI, Tan SGM. Communication skills for the anaesthetist. *Anaesthesia.* 2009;64: 658–665.

5. Rossi EL, & Rossi KL. What is a suggestion? The neuroscience of implicit processing heuristics in therapeutic hypnosis and psychotherapy. *Am J Clin Hypn.* 2007;49;267-281.

6. Jensen KB. Nonconscious activation of placebo and nocebo pain responses. *Proc Natl Acad Sci U S A*. 2012;25:109,39:15959-64.

7. Manyande A, Cyna AM, Yip P, Chooi C, Middleton P. Non-pharmacological interventions for assisting the induction of anaesthesia in children. Cochrane Database of Systematic Reviews, Issue 7. 2015. Art. No.:CD006447. DOI: 10.1002/14651858.CD006447.pub3.

8. Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine. (2015). Acute Pain Management: Scientific Evidence Fourth Edition 2015. (Eds. Schug S, Palmer GM, Scott DA, Halliwell R, Trinca J) www.fpm.anzca.edu.au/documents/apmse4_2015_final Accessed July 17 2018.

9. Amanzio M, Corazzini LL, Vase L, Benedetti F. A systematic review of adverse events in placebo groups of anti-migraine clinical trials. *Pain. 2009;* 146; 261-9.

10. Benedetti F, Lanotte M, Lopiano L, Colloca L. When words are painful: unravelling the mechanisms of the nocebo effect. *Neuroscience.* 2007;147:260–71.

11. Atlas LY, Wager, TD. A meta-analysis of brain mechanisms of placebo analgesia: consistent findings and unanswered questions. Handb Exp Pharmacol. 2014;225:37-69.

12. Dutt-Gupta J, Bown T, Cyna AM. Effect of communication on pain during intravenous cannulation: a randomized controlled trial. *Br J Anaesth. 2007;*99, 871-5.

13. Laing R, Cyna AM. Hypnosis and communication in paediatric peri-operative care. In: *Australasian Anesthesia.* Melbourne: Australian and New Zealand College of Anaesthetists; 2017:273-280.

14. Sainsbury D, Cyna AM. The paediatric patient. *Handbook of Communication and Critical Care. A practical guide to exploring the art.* Oxford: Oxford University Press; 2010. 111-125 p.

15. Cyna AM. A GREAT interaction and the LAURS of communication in anesthesia*. Acta Anaesth Belg.* 2018; 69,131-135.

16. Kitzinger J. Qualitative Research: Introducing Focus Groups. *BMJ.* 1985;311; 299.

17. Maguire P, Fairbairn S, Fletcher C. Consultation skills of young doctors: Benefits of feedback training in interviewing as students persist. *BMJ. 1986;* 292, 1573-6.

18. Buckman R. Communication and emotions. *BMJ. 2002;* 325, 672.

19. Ahmad N. Competence Based Training Paediatric Anaesthesia: Speciality Training in Paediatric Anaesthesia. 2008; https://www.gosh.nhs.uk/file/794/download Accessed July 17, 2018.

20. Simons H. (2009). *Case Study Research in Practice.* London, UK:Sage.

21. Cheek C, Hays R, Smith J. & Allen P. Improving case study research in medical education: a systematised review. *Medical Education.* 2018;52:480-487.

22. Bandura A. Social Learning Theory. 1977. New York: General Learning Press. https://www.learning-theories.com/social-learning-theory-bandura.html Accessed June 14, 2018.

23. Argyris C. *Overcoming Organizational Defences: Facilitating Organizational Learning.* 1st ed. Boston, US: Allyn & Bacon; 1990.

24. Braun V, Clarke, V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006; 3, 77–101.

25. Cohen L, Manion L, Morrison K. *Research Methods in Education.* 8th Ed. Oxon, UK: Routledge; 2018.

Tables

Table 1: LAURS framework for establishing rapport†

Technique	Description
LAURS framework to establish Rapport: Listening, Accepting, Utilizing, Reframing and Suggestion	**Listening** Asking what concerns are, checking back with the patient/carer that you heard what was said, understood what was said and that the patient/carer knows that they have been understood. For example, Anesthetist: 'So you are worried about waking up during the procedure, is that right?' Patient: 'Yes'. **Acceptance of Different Realities** 'I understand that you might be worried about waking up, as we often call an anesthetic a sleep- which you can usually be woken up from. So I can see why you might be worried about that' **Utilization and Reframing** 'An anesthetic is like a very deep sleep, much deeper than your sleep at night. In an anesthetic we look after you and monitor you closely. We give you strong medicine to make sure that you don't wake up during the procedure, but you wake up afterwards only when the procedure is finished and we have stopped the strong medicine.' e.g. *Informed Consent: We can frame consent into how we will avoid complications rather than giving negative suggestions. For example 'We will give you medicine to help you feel comfortable and relaxed, and make sure you are hungry afterwards so that you can look forward to eating and going home after your procedure'.* e.g. *Imagery:* Imagining the smell of sevoflurane volatile anesthetic as rocket fuel for a space-ship taking off. **Suggestion** "Most children are surprised how easy and comfortable the procedure is'.

† This table draws on descriptions of the LAURS framework published in:

Cyna, AM, Andrew MI, Tan SGM. Communication skills for the anaesthetist. *Anaesthesia.* 2009;64: 658–665.

Laing R, Cyna AM. Hypnosis and communication in paediatric peri-operative care. In: *Australasian Anesthesia.* Melbourne: Australian and New Zealand College of Anaesthetists; 2017:273-280.

Cyna AM. A GREAT interaction and the LAURS of communication in anesthesia*. Acta Anaesth Belg.* 2018; 69,131-135.

Table 2: Other communication techniques used to establish rapport and engage with patient and parent‡

Mirroring	Using a similar posture, language and vocal tone to communicate in a manner congruent with the other person
Persuasive language techniques: *a) Yes sets/compliance sets/ no sets* *b) Double bind* *c) Repetition/positive reinforcement* *d) Law of reversed effect*	a) Yes sets, compliance sets and no sets. Yes sets: Asking questions that are likely to generate a positive response to increase the success of a subsequent request. For example 'Is your name Sally?''Yes'. 'Would you like to bring your snuggly toy dog with you?' 'Yes'. 'Can you hop up onto Daddy's knee for a cuddle?' 'Yes'. 'Can you hold your mask for me?' Yes. b) Double binds and presuppositions. For example 'Would you like to hop up onto the bed yourself or Mummy lift you up?' This assumes that the child will be up on the bed for induction either way. c) Repeating positive words or phrases, usually praise. For example: 'Well done. Great job. That's right' to reinforce cooperative behaviour. d) 'Don't blow up my balloon' may paradoxically cause the child to blow it up more and breathe in more volatile anesthetic.
Social Proof	Social proof increases the acceptance of suggestions. For example, the indirect suggestion 'The last child felt so good afterwards that she ate an icy pole and an ice cream in recovery afterwards' implies that the same

	outcome may apply to this child too.
Focused attention: Lived- in imagination	This focuses the child's attention on recalling and enjoying a pleasant experience, thus replacing current anxiety with a happy, calmer and more suggestible state of mind.
Focused Attention: Stories	Focusing attention using imagery and story telling
Focused Attention: Distraction	Shifting the focus of attention away from anesthetic induction to something fun/interesting
Focused Attention: Dissociation	Disengaging from oneself, for example 'that arm' rather than your arm for cannula insertion
Seeding positive suggestions (indirect or direct)	Direct antiemetic suggestion: 'You can eat and drink as soon as you want to afterwards' Indirect analgesic suggestion: 'Most children are pretty comfortable after their procedure' implies they will be too.
Direct commands	'Please blow up the balloon for me'
Paralinguistics: Voice changes Pacing and leading	 Using a soft,quiet tone of voice Matching the child's pace of speech, then gradually slowing your speech down thus slowing their speech down too as you talk together
Non-verbal cues	Opening the door to the anesthetic bay and making the bed comfortable for the child
Avoiding Sabotage: Anxiety transference Nocebo and negative suggestions Minimising language	Negative suggestions by parents or staff that increase anxiety and reduce cooperation. For example 'Sharp scratch', 'Don't worry', 'It's just a little needle'

‡This table draws on descriptions of communication techniques published in

Cyna, AM, Andrew MI, Tan SGM. Communication skills for the anaesthetist. *Anaesthesia.* 2009;64: 658–665.

Carlyle AV, Ching PC, Cyna AM. Communication during induction of paediatric anaesthesia: an observational study. *Anaesth Intensive Care.* 2008;36:180-184.

Laing R, Cyna AM. Hypnosis and communication in paediatric peri-operative care. In: *Australasian Anesthesia.* Melbourne: Australian and New Zealand College of Anaesthetists; 2017:273-280.

Cyna AM. A GREAT interaction and the LAURS of communication in anesthesia. *Acta Anaesth Belg.* 2018; 69,131-135.

Table 3: GREAT framework for structuring any interaction and engaging with patient and parent §

Greeting, Goals	Greeting: Introductions, confirm patient identity Goals: Elicit patient and carer goals, confirm purpose of interaction and ensure mutual understanding
Rapport	**LAURS** (Table 2)
Evaluation, Expectations, Examination	Evaluation: Take a history and examine the patient, evaluate anxiety/likelihood of cooperation Expectations: Specifically address patient/carer expectations
Acknowledging & Addressing concerns	Implicitly and explicitly address concerns and be aware of control and vulnerability
Tacit agreement and thanks	Explicitly thank the patient and carer. Finish with a tacit agreement that a therapeutic relationship has been formed

§This table draws on descriptions of the GREAT framework published in

Cyna, AM, Andrew MI, Tan SGM. Communication skills for the anaesthetist. *Anaesthesia.* 2009;64: 658–665.

Laing R, Cyna AM. Hypnosis and communication in paediatric peri-operative care. In: *Australasian Anesthesia.* Melbourne: Australian and New Zealand College of Anaesthetists; 2017:273-280.

Sainsbury D, Cyna AM. The paediatric patient. Handbook of Communication and Critical Care. A practical guide to exploring the art. Chapter 10. Oxford: Oxford University Press; 2010. 111-125 p.

Cyna AM. A GREAT interaction and the LAURS of communication in anesthesia. *Acta Anaesth Belg.* 2018; 69,131-135.

Table 4: Results: Participants

	Study population	Focus Group Participants (by number in focus group)	Interview Participants	Total participants
Specialist pediatric anesthetists	37	3,3,2	5	13
Anesthetic nurses	25	7	1	8
Anesthetic fellows (trainees)	5	2	1	3
Anesthetic registrars (trainees)	9	5	1	6
Total	76	25	8	30

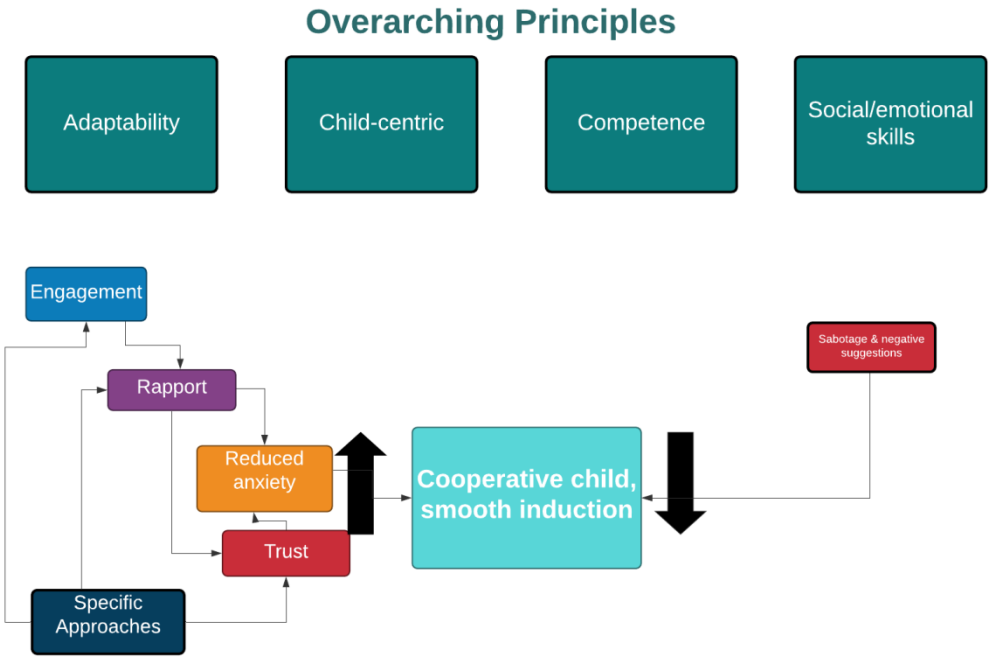
Table 5: Focus group and interview questions

1. Which communication skills, tools or techniques do you use?
2. Which communication skills, tools or techniques have you seen used?
3. Which communication skills, tools or techniques do you think are most effective when communicating with children to reduce pain and distress and ease induction of anesthesia?
4. Which do you think should be taught to anesthetic trainees?

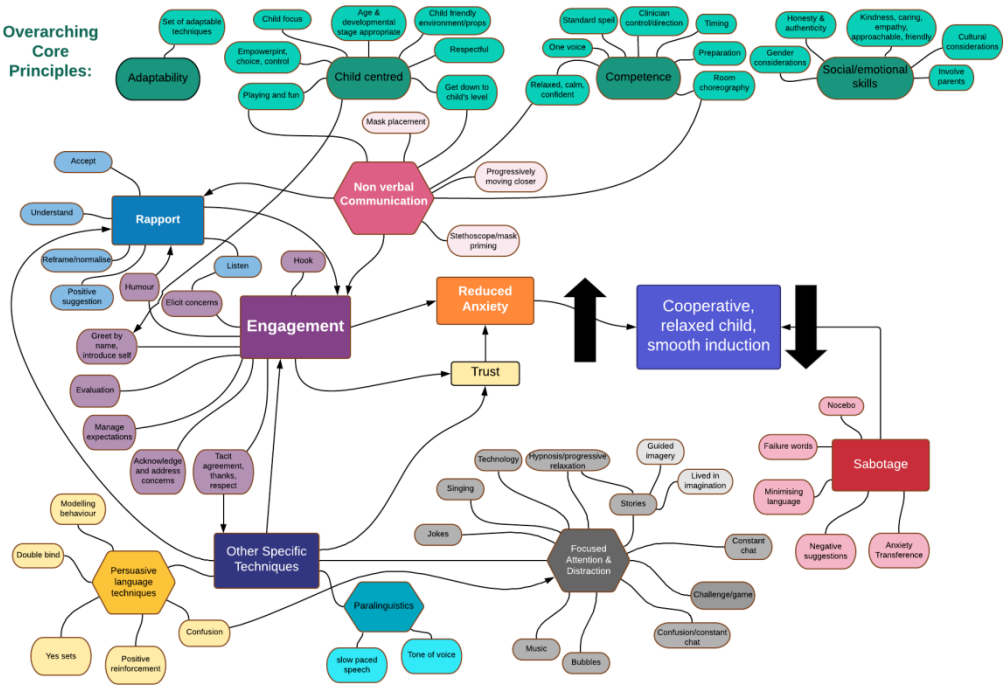
Figure Caption List

Figure 1: Summarized Results

Figure 2: Mind-map of Results showing effective communication techniques in pediatric anesthesia: core overarching principles, techniques to establish rapport and build engagement, plus sabotage to avoid



pan_13846_f1.tif



pan_13846_f2.tif